

REMARKS

Claims 1-6 and 8-15 are all the claims pending in the application.

Support for the amendment to claim 1 may be found in the specification as originally filed, for example, in original claim 7. Additionally, support for the term “squeegee rubber” may be found in the specification as originally filed, for example, at page 1, lines 18 to 21, page 8, lines 15 to 16, page 10, lines 17 to 19, page 11, Table 2, Fig. 1 and also in Examples 1, 2, 3 and 4.

I. Formal Matters

Applicants filed an Information Disclosure Statement (IDS) on January 14, 2003. The Examiner is requested to acknowledge receipt of the IDS and to initial and return a copy of the Form PTO/SB/08.

II. The Rejection Under 35 U.S.C. §112

Claims 2, 4-6, 8, 9, 11, 13 and 15 are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The Examiner states that there is not antecedent basis for the language “the rubber composition” in claim 2, line 6 (page 12, line 10).

The Examiner also states that Applicant defines a first rubber composition in the composite layer and a second rubber composition in the rubber composition layer and that it is unclear which composition is required to have an inorganic filler.

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The Examiner notes Applicant's specification (page 4, lines 2-3) and concludes that Applicant intends the language of the claim to read "a basic inorganic filler being compounded into at least one rubber composition". The Examiner has examined claim 2 with the assumption that the inorganic filler must be present in either or both of the respective layers (composite layer or rubber composition layer).

Applicants respectfully submit that the present claims are clear and definite as written and that they particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants request that the Examiner reconsider and withdraw the rejection under 35 U.S.C. §112, second paragraph, in view of the following remarks.

Independent claim 2 has been amended to clarify the language and to more particularly point out and distinctly claim Applicants' invention. As discussed in further detail below, claim 2 recites the presence of a squeegee rubber composition and the basic inorganic filler is compounded into the squeegee rubber composition.

The object to use the squeegee rubber is described in the Specification, at "Description of the Prior Art" (page 1, lines 18 to 21).

In the Specification, on page 10, lines 17 to 19, the paragraph explains Examples of the present invention, and states that "the combination of the coating rubber (composite layer) and the squeegee rubber (rubber composition layer) used in

the carcass ply of each test tire is shown in Table 2". It is clear from this paragraph that the rubber composition layer is just the squeegee rubber. Further, on page 8, lines 13 to 16, the specification reads that "[t]he tire reinforcing member comprises (a) at least one composite layer of steel cords coated with a coating rubber composition and, optionally (b) at least one rubber composition layer (for example, a so-called squeegee rubber) adjoining to the composite layer". Furthermore, on page 4, lines 8 to 20, the specification explains Figs. 1a to 1c and describes "rubber composition layer 3" at line 12, and therefore, it is understood from this explanation that the numeral 3 in Figs. is just the squeegee rubber.

For the above reasons, it is respectfully submitted that Applicants' claims are clear and definite and it is requested that the rejection under 35 U.S.C. §112 be reconsidered and withdrawn.

III. The Art Rejections

The tire reinforcing member of the present invention recited in claim 1 is characterized by a composite layer which comprises **(B)** a coating rubber composition comprising **(A)** a hydrotalcite mineral as a basic inorganic filler, and **(C)** steel cords. An object of the invention is to provide a tire reinforcing member and a tire containing the same member, which member can greatly enhance an adhesive property, resistant to the loss of the steel cord-to-coating rubber adhesion, and can greatly improve the durability of a tire, without putting any influences

upon the initial-stage adhesive strength between the steel cords and the coating rubber composition.

The tire reinforcing member of the present invention recited in claim 2 is characterized by (a) at least one composite layer comprising a coating rubber composition and steel cords, and (b) at least one rubber composition layer comprising a squeegee rubber composition, which adjoins to the composite layer, and (c) a basic inorganic filler being compounded into the squeegee rubber composition. An object of the invention is to provide a tire reinforcing member and a tire applied by the member, which member can greatly enhance an adhesive-property having resistance to the loss of the steel cord-to-coating rubber adhesion and also can improve durability of a tire, without giving any influences upon the initial stage adhesion between the steel cords and the coating rubber composition.

A. USP 4,057,529 (Leo)

Claims 1-6 and 9-13 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Leo.

Claims 2-6, 9 and 11-15 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Leo.

Applicants respectfully submit that the present invention is not anticipated by or obvious over the disclosures of Leo and request that the Examiner reconsider and withdraw these rejections in view of the following remarks.

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Leo discloses a composite comprising a coating rubber and steel cords wherein MgO (a basic inorganic filler) is compounded into the coating rubber. Leo alleges an improvement on an adhesion after a heat-aging. Although Leo teaches a coating rubber composition and steel cords. Applicants respectfully submit that Leo does not teach or suggest **(A)** the hydrotalcite mineral compounded in **(B)** the coating rubber composition. (See also attached Declaration).

As to claim 2, Applicants respectfully submit that Leo does not teach or disclose elements **(b)** at least one rubber composition layer comprising a squeegee rubber composition, which adjoins to the composite layer, and **(c)** a basic inorganic filler being compounded into the squeegee rubber composition, which are recited in claim 2.

Additionally, Applicants have conducted comparative experiments to show the unexpected differences between the use of hydrotalcite defined in the present invention and the Mg-oxide disclosed in Leo. See the attached Declaration Under 37 C.F.R. §1.132 by Mr. Kaneda.

For the above reasons, it is respectfully submitted that the subject matter of claims 1-6 and 8-15 is neither taught by nor made obvious from the disclosures of Leo and it is requested that the rejections under 35 U.S.C. §§102 and 103(a) be reconsidered and withdrawn.

B. USP 4,545,416 (Itoh)

Claims 1-6 and 9-15 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Itoh (US 4,545,416).

Applicants respectfully submit that the present invention is not anticipated by or obvious over the disclosures of Itoh and request that the Examiner reconsider and withdraw this rejection in view of the following remarks.

Itoh discloses a technology that allegedly improves corrosive-fatigue properties by compounding a transition-metal (Co, Ni, etc.) salt of a primary fatty acid having 6 to 10 carbon atoms in a composite belt or in a carcass coating rubber comprising a coating rubber and steel cords. Although Itoh teaches a coating rubber composition and steel cords, Applicants respectfully submit that Itoh does not teach or disclose any compounding of (A) the hydrotalcite mineral, as a basic inorganic filler, in the coating rubber composition.

As to claim 2, (iii) Itoh does not teach or disclose (b) at least one rubber composition layer comprising a squeegee rubber composition, which adjoins to the composite layer, and (c) a basic inorganic filler being compounded into the squeegee rubber composition, which are recited in claim 2.

For the above reasons, it is respectfully submitted that the subject matter of claims 1-6 and 9-15 is neither taught by nor made obvious from the disclosures of

Itoh and it is requested that the rejection under 35 U.S.C. §102 be reconsidered and withdrawn.

C. USP 6,028,144 (Nguyen)

Claims 1-6 and 9-15 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Nguyen.

Applicants respectfully submit that the present invention is not anticipated by or obvious over the disclosures of Nguyen and request that the Examiner reconsider and withdraw this rejection in view of the following remarks.

Nguyen discloses a carcass coating rubber compounded therein a copolymer of halogen-containing isomonoolefin and p-alkylstyrene. The Examiner indicates that, for example, calcium carbonate, silica, clay, talc, or titanium oxide is applicable as an inorganic filler, and that any type of rubber tires can be used in the carcass coating rubber. It is, however, noted that Nguyen teaches only a coating rubber composition and does not teach or suggest the compounding of hydrotalcite mineral in the coating rubber composition. Moreover, Nguyen does not describe the material-quality of the carcass and it can not be determined if the material-quality is an organic fiber or steel cords.

As to claim 2, Nguyen does not teach or disclose **(b)** at least one rubber composition layer comprising a squeegee rubber composition, which adjoins to the

composite layer, and **(c)** a basic inorganic filler being compounded into the squeegee rubber composition, which are recited in claim 2.

For the above reasons, it is respectfully submitted that the subject matter of claims 1-6 and 9-15 is neither taught by nor made obvious from the disclosures of Nguyen and it is requested that the rejection under 35 U.S.C. §103(a) be reconsidered and withdrawn.

D. Nguyen further in view of Hashimoto

Claims 7 and 8 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Nguyen further in view of Hashimoto (US 4,714,734).

Applicants respectfully submit that the present invention is not anticipated by or obvious over the disclosures of Nguyen further in view of Hashimoto and request that the Examiner reconsider and withdraw this rejection in view of the following remarks.

Hashimoto discloses a silicone rubber allegedly excellent in properties of breaking strength, water-proofing, and heat-conductivity, and uses a sidewall as an example of a tire. The Examiner indicates that the hydrotalcite is disclosed as a filler in Hashimoto. Applicants note that Hashimoto teaches only the application of hydrotalcite to the sidewall of a tire. Applicants respectfully submit that Hashimoto does not teach or suggest the compounding of hydrotalcite in **(B)** a coating rubber composition as a basic inorganic filler and **(C)** steel cords.

Applicants also note that the teaching of the hydrotalcite in Hashimoto is a mere option from a long list of fillers and that Hashimoto does not teach or disclose any specific type of hydrotalcite mineral.

As to claim 2, Hashimoto does not teach or disclose (a) at least one composite layer comprising a coating rubber composition and steel cords, and (b) at least one rubber composition layer comprising a squeegee rubber composition, which adjoins to the composite layer, and (c) a basic inorganic filler being compounded into the squeegee rubber composition, which are recited in claim 2.

Applicants position concerning the teachings of Nguyen remain as discussed above. Even if the disclosures of Nguen and Hashimoto are combined, it is respectfully submitted that it would not have been obvious to one of ordinary skill in the art to select the claimed tire reinforcing member, which is suitably selected to form a tight and practical bond between the cover inner and outer layer formed, each formed of specific materials, to improve a known problem in the art.

For the above reasons, it is respectfully submitted that the subject matter of claims 7 and 8 is neither taught by nor made obvious from the disclosures of Nguen and Hashimoto and it is requested that the rejection under 35 U.S.C. §103(a) be reconsidered and withdrawn.

E. Further Evidence of Unexpected Superiority

The tire reinforcing member as claimed, as discussed above, can achieve a remarkably high-level adhesion which is resistant to the loss of the steel cord-to-

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coating rubber adhesion and can improve high-level durability of a tire, without giving any influences on an adhesive strength in the initial stage. Such advantages are unexpected in view of the art and are only attained for the first time, by the combination of the claimed elements (A), (B) and (C). As shown in the comparative data of the attached Declaration Under 37 C.F.R. §1.132 by Mr. Kaneda, the adhesive property having resistance to the loss of steel cord-to-coating rubber adhesion in the case where hydrotalcite mineral is compounded in the coating rubber composition is unexpectedly improved over the use of MgO.

Nowhere in the above cited references, as mentioned in Sections A to D above, is disclosed or suggested the compounding (A) the hydrotalcite mineral in (B) the coating rubber composition and (C) the steel cord.

Accordingly, Applicants respectfully submit that their claimed invention is allowable and ask that the rejection under 35 U.S.C. §112 and the rejections under 35 U.S.C. §§102 and 103 be reconsidered and withdrawn. Applicants respectfully submit that this case is in condition for allowance and allowance is respectfully solicited.

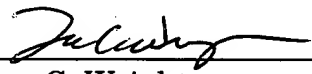
If any points remain at issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the local exchange number listed below.

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Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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Date: May 1, 2003

APPENDIX

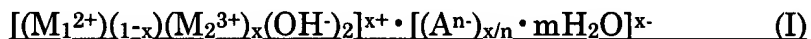
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 7 is cancelled.

The claims are amended as follows:

1 (amended). A tire reinforcing member comprising at least one composite layer comprising a coating rubber composition and steel cords, in which a basic inorganic filler is compounded into the coating rubber composition, wherein the basic inorganic filler is a hydrotalcite mineral represented by the following Formula I or a calcined product thereof:



wherein M_1^{2+} is a divalent metal cation, M_2^{3+} is a trivalent metal cation, A^{n-} is an n-valent anion, x is a number satisfying an equation: $0 < x < 0.5$, and m is zero or a positive number.

2 (amended). A tire reinforcing member comprising:

- (a) at least one composite layer comprising a coating rubber composition and steel cords, and
- (b) at least one squeegee rubber composition layer comprising a rubber composition, which adjoins to the composite layer,
a basic inorganic filler being compounded into the squeegee rubber composition.

5 (amended). The tire reinforcing member according to claim 2 , wherein the basic inorganic filler is compounded into the squeegee rubber composition layer in an amount of 0.1 to 20 parts by weight based on 100 parts by weight of a rubber component of the squeegee rubber composition.

6 (amended). The tire reinforcing member according to claim 4, wherein the basic inorganic filler is compounded into the squeegee rubber composition layer in an amount of 0.1 to 20 parts by weight based on 100 parts by weight of a rubber component of the squeegee rubber composition.

9 (amended). The tire reinforcing member according to claim 2, wherein at least one of the outermost layers of the tire reinforcing member is the squeegee rubber composition layer.